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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/677,870	10/03/2000	Woo Hyuk Choi	2658-0240P	6124

2292 7590 10/23/2002

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

RUDE, TIMOTHY L

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/677,870

Applicant(s)

CHOI ET AL.

Examiner

Timothy L Rude

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. 37 CFR 1.83(b) reads as follows:

When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

Figures 6 and 7 do not provide adequate illustration of the "hole" and the related "protrusion". The boundaries of the overlapping structure are not clear, and the size and shape of said hole is not clear. The exact relationship of said protrusion with respect to said hole is also not clear.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 4, it is not clear how a hole can be connected to anything. Furthermore, it is not clear whether the claimed hole exists to facilitate a subsequent repair or whether it is created only when a repair is performed. Appropriate correction is required. For purposes of examination, the formation of the hole will be considered part of the repair process and not part of the initial fabrication process.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 2, and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al (Kim) USPAT 6,429,909 B1.

As to claims 1 and 2, Kim discloses in the third embodiment, Figures 6 and 7, (col. 6, line 35 through col. 7, line 5), a thin film transistor substrate in a liquid crystal display provided with a data lines, 400, for applying a data signals, a gate line, 100, for applying a gate signal, and a transparent pixel electrode, 600, for driving a liquid crystal cell, said substrate comprising: repair lines, 110 and 120, (Applicant's gate dummy pattern) formed of the same material layer as the gate line (col. 6, lines 38-42 and col. 2, lines 10-17) in such a manner to be extended in the vertical direction from the gate line, 100, and to overlap the pixel electrode, 600, and data line 400, to compensate for misalignment occurring along the data line.

FIG. 6

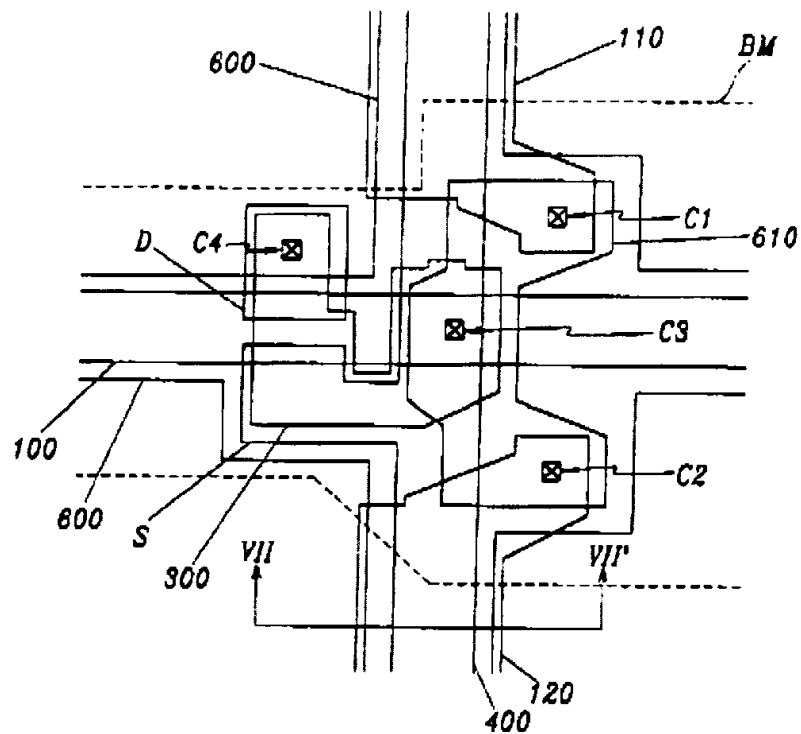
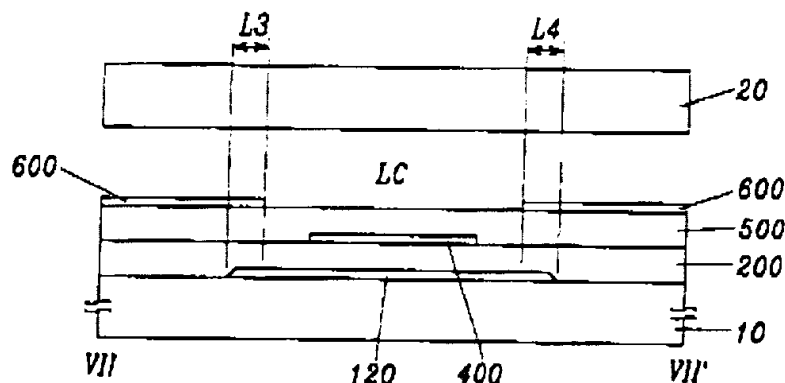


FIG. 7



As to claim 5, Kim discloses the use of repair lines, 110 and 120, (Applicant's gate dummy pattern) as a black matrix (col. 6, lines 48-59 and col. 1, line 66 through col. 2, line 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

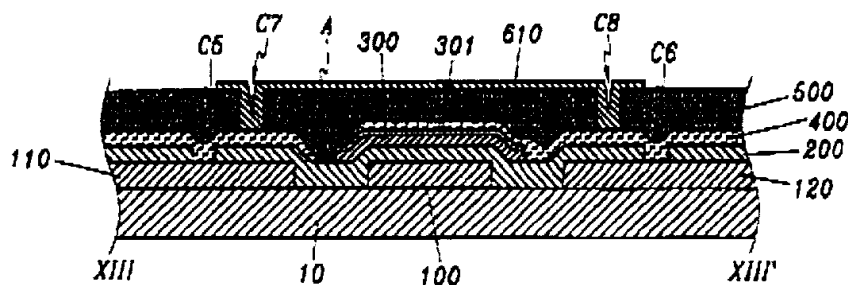
4. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim.

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As to claims 3 and 4, Kim discloses the thin film transistor substrate according to claims 1 and 2.

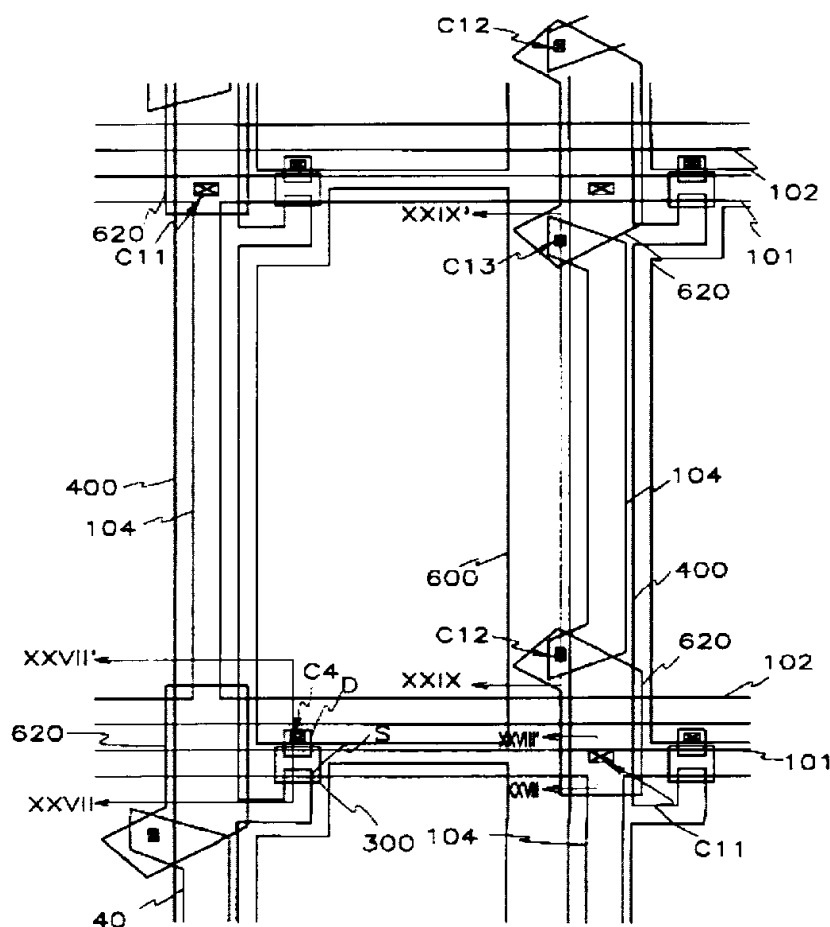
Kim teaches in Figure 13 the use of forming holes and connections to the repair lines, 110 and 120, (Applicant's gate dummy pattern) and to a connecting pattern, 610, to repair a broken data line, 400, (col. 8, lines 1-15).

FIG. 13



Kim teaches in Figure 26 the use of repair lines, 104, (Applicant's gate dummy pattern used as a redundancy electrode) to connect the gate line to the data line (col. 13, lines 4-17).

FIG. 26



Kim is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to form holes and connect gate dummy patterns to gate lines to repair a broken data line.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Kim by forming holes and connecting gate dummy patterns to gate lines to repair a broken data line.

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5. Claims 3, 4, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim, as applied to claims 1 and 2 above, in view of Song et al (Song) USPAT 6,313,889 B1.

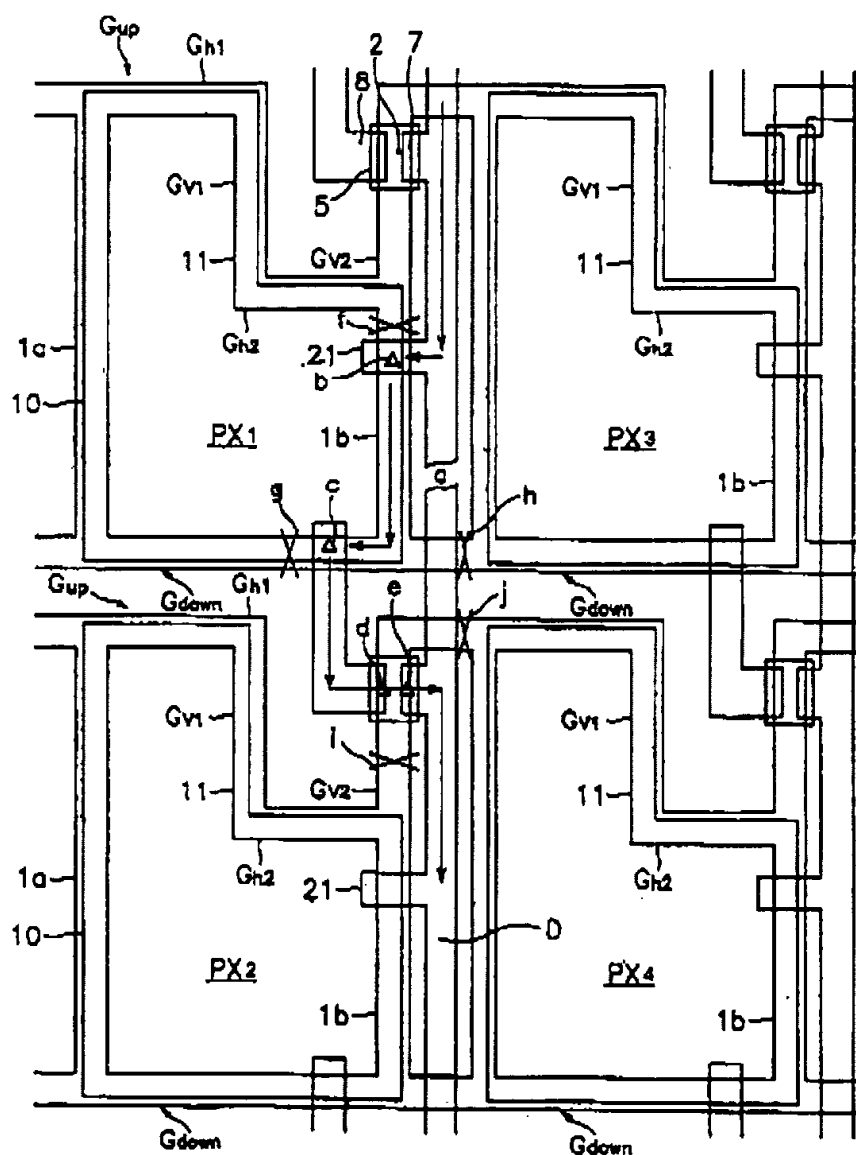
As to claim 3, Kim discloses the thin film transistor substrate according to claims 1 and 2.

Song teaches the use of a redundant pattern in Figure 19A (G_{up} and G_{down} or 1a and 1b) as a redundancy electrode for electrically connecting the gate line to the broken data line (col. 17, lines 4-67, especially col. 17, lines 47-54) to effect repairs.

Song is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to form the gate dummy pattern in such a manner as to serve as a redundancy electrode for electrically connecting the gate line to the broken data line to effect repairs.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Kim with the redundancy electrodes for electrically connecting the gate line to the broken data line per Song.

FIG. 19A



As to claim 4, Song teaches in Figures 16-27D, e.g., Figure 19A, (col. 12, line 51 through col. 25, line 45) and throughout much of the text, a substrate wherein the left and right auxiliary gate lines (Applicant's gate dummy pattern) includes a disconnect, e,

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(Applicant's hole) (col. 17, lines 4-67, especially col. 17, lines 47-54) connected to the gate line and formed to permit a repair.

Song is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to form the gate dummy pattern in such a manner as to includes a hole connected to the gate line and formed to permit a repair.

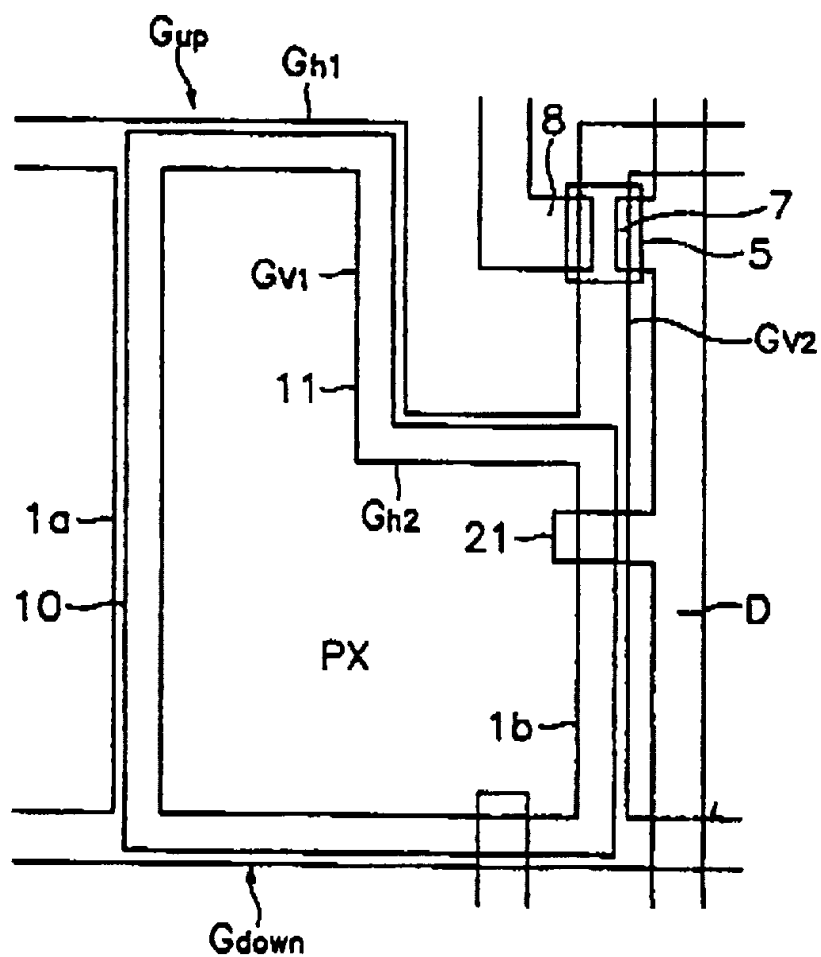
Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Kim with the dummy pattern and hole per Song.

As to claim 6, Song teaches in Figure 18 a thin film transistor substrate further comprising: a storage capacitor defined by a horizontal overlapping part, G_{h2} , between the gate line and the pixel electrode, PX. Song also teaches in Figure 18 an analogous overlapping portion, 21, of the data line, D, to permit a repair.

Song is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to form the gate dummy pattern in such a manner as to includes a hole connected to the gate line and formed to permit a repair.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Kim with the dummy pattern and hole per Song.

FIG. 18



As to claim 7, Song teaches in Figures 18 and 19A a protrusion, 21, formed in such a manner to overlap with the hole (to be created during repair), the structure of which would thereby shut off a light leaked between the gate dummy pattern and the gate line (col. 15, lines 42-63).

Song is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a protrusion, formed in such a manner to overlap with the hole (to be created during repair), to permit a repair.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Kim with the protrusion of Song.

Conclusion

6. References cited but not applied are relevant to the instant application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (703) 305-0418. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on (703) 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7725 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.



TLR
October 16, 2002

Timothy L Rude
Examiner
Art Unit 2871



TOANTON
PRIMARY EXAMINER